

We claim:

1. A sports shaft comprising:

an elongated body comprising opposed first and second major side surfaces spacing apart opposed first and second minor side surfaces,

5 each said major surface having two lateral major edges disposed along the length of said elongated body,

each said minor surface having two lateral minor edges disposed along the length of the elongated body,

10 each said major edge abutting an adjacent minor edge along its entire length forming four angles along the longitudinal periphery of said body,

15 at least one of said angles comprising a longitudinally disposed groove therein, said groove comprising a first face disposed adjacent said major surface and a second face disposed adjacent said minor surface, said first and second faces each having a margin disposed distally from said major and minor surfaces, said margins abutting each other for the length of the groove,

said first face and said second face defining a cavity,

20 said cavity being filled with an elastomeric material.

2. The sports shaft of claim 1 wherein said elastomeric material is selected from a group comprising :

thermoset elastomeric urethane, thermoplastic polyurethane
thermoset elastomer dicyclopentadiene, thermoplastic elastomer,

thermoplastic urethane, silicone, rubber, polyisoprene, polybutadiene, polyisobutylene and latex.

3. The sports shaft of claim 2 wherein said first face is disposed substantially perpendicularly to said major surface.
- 5 4. The sports shaft of claim 2 wherein said second face is disposed substantially perpendicularly to said minor surface.
5. The sports shaft of claim 2 wherein said first and said second faces are both disposed perpendicularly to said major surface and said minor surface.
- 10 6. The sports shaft of claim 3 to 5 wherein said elastomeric material fills a volume bounded by said first face, by said second face, by a first plane projecting from and being parallel to said major surface and by a second plane projecting from and being parallel to said minor surface.
- 15 7. The sports shaft of claim 2 wherein at least one said angle comprises two separate and spaced apart grooves, each said groove comprising a cavity filled with elastomeric material.
8. The sports shaft of claim 7 wherein two or more of said angles each comprise a groove therein, said groove comprising a cavity filled with elastomeric material.
- 20 9. The sports shaft of claim 2 wherein said groove is disposed along only a longitudinal portion of said angle.
10. The sports shaft of claim 2 wherein said elastomeric material is shaped such that its exterior shape is undulating.
11. The sports shaft of claim 2 wherein said first face and said second face are coplanar.

12. The sports shaft of claim 2 wherein said first face and said second face are the same size.
13. The sports shaft of claim 2 wherein said elastomeric material fills a volume which is bounded by said first face, by said second face and by the segment of an arc, said segment of an arc beginning at the intersection of said first face and said major surface and ending at the intersection of said second face and said minor surface.
14. The sports shaft of claim 2 wherein said segment of an arc begins at either one of said minor surface adjacent said second face or at said major surface adjacent said first face.
15. The sports shaft of claim 2 wherein said segment of an arc begins on said major surface adjacent said first face and ends on said minor surface adjacent said second face.
16. The sports shaft of claim 2 wherein at least one of said first and second faces comprises at least one depression therein.
17. The sports shaft of claim 16 wherein said at least one depression is disposed longitudinally to the length of said groove.
18. The sports shaft of claim 17 wherein said depression is disposed perpendicularly to the length of said groove.
19. The sports shaft of claim 2 wherein at least one of said first and second faces comprises at least one raised portion thereon.
20. The sports shaft of claim 19 wherein said at least one raised portion is disposed longitudinally to the length of said groove.
21. The sports shaft of claim 20 wherein said raised portion is disposed perpendicularly to the length of said groove.

22. The sports shaft of claim 2 wherein said shaft is a hockey shaft.

23. A sports shaft comprising:

an elongated body comprising opposed first and second major wall components spacing apart opposed first and second minor wall components,

said first major wall component comprising a first shelf component adjacent said first major wall component, said first shelf component projecting from said first major wall component towards said second major wall component, said first shelf component having a first distal end,

said first minor wall component comprising a second shelf component adjacent said first major wall component, said second shelf component projecting from said first minor wall component towards said second minor wall component, said second shelf component having a second distal end,

wherein said first and second distal ends meet forming a groove on the outside of said elongated body, said groove being filled with an elastomeric material.

24. The sports shaft of claim 23 wherein said elastomeric material is selected from a group comprising :

thermoset elastomeric urethane, thermoplastic polyurethane, thermoset elastomer dicyclopentadiene, thermoplastic elastomer, thermoplastic urethane, silicone, rubber, polyisoprene, polybutadiene, polyisobutylene and latex.

25. The sports shaft of claim 24 wherein said first face is disposed substantially perpendicularly to said major surface.

26. The sports shaft of claim 24 wherein said second face is disposed substantially perpendicularly to said minor surface.
27. The sports shaft of claim 24 wherein said first and said second faces are both disposed perpendicularly to said major surface and said minor surface.
- 5 28. The sports shaft of claim 24 to 27 wherein said elastomeric material fills a volume bounded by said first face, by said second face, by a first plane projecting from and being parallel to said major surface and by a second plane projecting from and being parallel to said minor surface.
- 10 29. The sports shaft of claim 24 wherein at least one said angle comprises two separate and spaced apart grooves, each said groove comprising a cavity filled with elastomeric material.
30. The sports shaft of claim 29 wherein two or more of said angles each comprise a groove therein said groove comprising a cavity filled with elastomeric material.
- 15 31. The sports shaft of claim 24 wherein said groove is disposed along only a longitudinal portion of said angle.
32. The sports shaft of claim 24 wherein said elastomeric material is shaped such that its exterior shape is undulating.
- 20 33. The sports shaft of claim 24 wherein said first face and said second face are coplanar.
34. The sports shaft of claim 24 wherein said first face and said second face are the same size.
- 25 35. The sports shaft of claim 24 wherein said elastomeric material fills a volume which is bounded by said first face, by said second face and by the segment of an arc, said segment of an arc beginning at the intersection of said first

face and said major surface and ending at the intersection of said second face and said minor surface.

36. The sports shaft of claim 24 wherein said segment of an arc begins at either one of said minor surface adjacent said second face or at said major surface adjacent said first face.

37. The sports shaft of claim 24 wherein said segment of an arc begins on said major surface adjacent said first face and ends on said minor surface adjacent said second face.

38. The sports shaft of claim 24 wherein at least one of said first and second faces comprises at least one depression therein.

39. The sports shaft of claim 38 wherein said at least one depression is disposed longitudinally to the length of said groove.

40. The sports shaft of claim 39 wherein said depression is disposed perpendicularly to the length of said groove.

41. The sports shaft of claim 24 wherein at least one of said first and second faces comprises at least one raised portion thereon.

42. The sports shaft of claim 41 wherein said at least one raised portion is disposed longitudinally to the length of said groove.

43. The sports shaft of claim 42 wherein said raised portion is disposed perpendicularly to the length of said groove.

44. The sports shaft of claim 24 wherein said shaft is a hockey shaft.

45. A hockey stick blade comprising:

a blade body having a toe section and an opposed heel section, opposed first and second lateral side faces, said blade body further comprising a bottom surface and an opposed top surface,

a groove disposed in said top surface and in said first lateral side surface, said groove comprising a first face disposed adjacent said top surface and a second face disposed adjacent said first lateral side face, said groove being filled with an elastomeric material.

46. The hockey stick blade of claim 45 wherein said blade body comprises a second groove disposed in said top surface and in said first lateral side face, said second groove comprising a first face disposed adjacent said top surface and a second face disposed adjacent said second lateral side face, said groove being filled with an elastomeric material.

47. The hockey stick blade of claims 45 or 46 wherein said elastomeric material is selected from a group comprising:

thermoset elastomeric urethane, thermoplastic polyurethane, thermoset elastomer dicyclopentadiene, thermoplastic elastomer, thermoplastic urethane, silicone, rubber, polyisoprene, polybutadiene, polyisobutylene and latex.

48. A hockey stick blade comprising:

a blade body having a toe section and an opposed heel section, opposed first and second lateral side faces, a bottom surface and an opposed top surface,

wherein said top surface is overlaid with an elastomeric material.

49. The hockey stick blade of claim 48 wherein said elastomeric material is selected from a group comprising:

thermoset elastomeric urethane, thermoplastic polyurethane, thermoset elastomer dicyclopentadiene, thermoplastic elastomer, thermoplastic urethane, silicone, rubber, polyisoprene, polybutadiene, polyisobutylene and latex.

5 50. A method of fabricating a sports shaft comprising the steps of:

- placing a

10 preformed sports shaft comprising an elongated body comprising opposed first and second major side surfaces spacing apart opposed first and second minor side surfaces, each said major surface having two lateral major edges disposed along the length of said elongated body, each said minor surface having two lateral minor edges disposed along the length of said elongated body, each said major edge abutting an adjacent minor edge along its entire length

15 forming four angles along the longitudinal periphery of said body, at least one of said angles comprising a longitudinally disposed groove therein, said groove comprising a first face disposed adjacent said major surface and a second face disposed adjacent said minor surface, said first and second

20 faces each having a margin disposed distally from said major and minor surfaces, said margins abutting each other for the length of the groove, said first face and said second face defining a cavity,

into a first mold section,

25 - closing a second mold section around said preformed sports shaft,

- injecting an elastomeric material into the closed mold such that the cavity becomes filled with elastomeric material,

- removing said sports shaft from said mold.

51. The method of claim 50 wherein said elastomeric material is selected from a group comprising:

5 thermoset elastomeric urethane, thermoplastic polyurethane,
 thermoset elastomer dicyclopentadiene, thermoplastic elastomer,
 thermoplastic urethane, silicone, rubber, polyisoprene,
 polybutadiene, polyisobutylene and latex.

52. The method of claim 51 wherein said injection of said elastomeric material can be cured at temperatures of from room temperature up to 290° F.

10 53. The method of claim 52 wherein the elastomeric material can be injected into the mold at a pressure of from 20 to 40 pounds per square inch.